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| TO: | Mr. Carl P. Garvey and Mr. M. Brendan Mullen<br>(Revitalizing Auto Communities Environmental Response Trust)<br>Mr. Alan J. Knauf and Ms. Linda R. Shaw (Knauf Shaw LLP) |
| FROM: | Katherine Lasseter, Jason Dittman, Jamie Combes, and Erin Kuhlmeier<br>(TIG Environmental)<br>443 North Franklin Street, Suite 220, Syracuse, NY 13204 |
| SUBJECT: | **Evidence Summary Memorandum for National Grid South Site** |
| DATE: | October 2, 2019 |

## 1. Introduction

Revitalizing Auto Communities Environmental Response (RACER) Trust and Knauf Shaw LLP (Knauf Shaw) contacted TIG Environmental[1] to provide consulting services regarding potentially responsible party (PRP) identification and investigation, sampling and data analysis, and expert witness testimony to support RACER Trust and Knauf Shaw during litigation proceedings stemming from a Civil Action No.: 5:18-cv-1267 [DNH/ATB] filed on October 26, 2018 (the Complaint) (RACER 2018).

In the Complaint, RACER Trust, by its attorneys, Knauf Shaw LLP, brings claims for cost recovery and contribution under Sections 107(a) and 113(f) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) 42 U.S.C. 9607(a) and 9613(f), inter alia, against parties (Defendants) operating in or around the Ley Creek Watershed Site (Study Area) in Onondaga County, New York. The Complaint asserts that the Defendants are responsible to contribute to the cost of past and future investigations to address contamination in and around the Study Area.

The Study Area consists of the GM-Inland Fisher Guide Facility (GM-IFG) Sub-Site Operable Unit 1 (OU-1), the expanded OU-2 area (Ley Creek from Townline Road west to Route 11, including creek banks and limited floodplain and hotspot areas), and tributaries upstream of Townline Road bridge. As defined in the Record of Decision (ROD) for OU-2, the identified contaminants of concern (COCs) in the Study Area are polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), chromium, copper, lead, nickel, and zinc. PCBs are the predominant contaminants in Ley Creek sediments (NYSDEC and EPA 2015).

[1] TIG Environmental is a member of The Intelligence Group, LLC.

# Evidence Summary Memorandum for National Grid South Site

In this evidence summary memorandum (ESM), TIG Environmental reviewed evidence gathered by RACER Trust and Knauf Shaw to evaluate the following for each Defendant's site:

- Documented and suspected PCB usage at the Defendant's site
- The existence of PCB-containing electrical equipment or electrical substations (utility- or Defendant-owned) on Defendant's site
- Whether pathways exist between the Defendant's site and the Ley Creek watershed (defined as Ley Creek and its tributaries)

Sections 2 through 4 summarize the available information on Defendant operations related, or potentially related, to PCB usage; detections of contaminants at or related to the Defendant site; permits, waste handling, spills, and/or releases at each Defendant's site; whether pathways from the Site to Ley Creek watershed can be determined; data gaps; and proposed sampling to address identified data gaps. Defendant information, site ownership information, and dates of operation for the Defendant's site are available in Knauf Shaw's site dossier (Knauf Shaw National Grid Teall Substation Site Dossier 2019).

## 2. Description of Site Operations Related to PCBs

National Grid has operated the Teall Ave substation at the National Grid South Site (the Site), located at 800 Factory Avenue, Salina, NY, since the 1920s (Knauf Shaw National Grid Teall Substation Site Dossier 2019, 1). Ley Creek is adjacent to the north Site boundary and the former IFG Facility is adjacent to the east Site boundary (NYSDEC and EPA 2015, 58). The National Grid Teall Ave substation is within the 10-acre National Grid wetlands, which are part of General Motors IFG Site Operable Unit (OU) 2 (NYSDEC and EPA 2015, 10, 58). The Site contains an oil house, at least four transformer banks containing a total of at least 12 transformers (manufactured in either 1930 or 1940), and other electrical support equipment and structures (FOIL063064 at FOIL063066, 112).

Minimal information is available regarding early operations and materials used at the Site. In 2014, New York State Department of Environmental Conservation (NYSDEC) received a report[2] that nine of the transformers at the Site were leaking. Following the 2014 report of the release, National Grid sampled the oil in the transformers and indicated the oil contained up to 19 parts per million (ppm) of PCB Aroclor 1260[3] and up to 8.1 ppm of Aroclor 1242 (FOIL063044 at FOIL063045; FOIL063056 at FOIL063057). Site photographs of the transformers show apparent oil staining on transformers, broken concrete pads, and gravel adjacent to the transformers (FOIL063052 at FOIL063052–055). During an inspection in 2014, NYSDEC noted residual oil present on the ground below all 12 transformers, indicating likely historical

[2] It is unclear who reported the release. The NYSDEC spill report form indicates the spill was reported by "other" during a field site inspection (FOIL063044 at FOIL063045).

[3] Beginning in 1935, Swann Chemical Company, followed by the Monsanto Company, produced commercially available PCB-containing goods in a line of products known as "Aroclors." Each of the 10 common PCB Aroclor mixtures are generally associated with certain signatures of PCB congeners (there are 209 PCB congeners) (Erickson and Kaley 2011, 2–3). The style of reporting analytical data for PCBs varies in reviewed documentation. Results may be reported as individual Aroclors and/or congeners, as a sum of all or some of these analytes, or simply as "PCBs." For purposes of this memorandum, TIG Environmental will state "total PCBs" when the source document has reported analytical results as either "PCBs" or "total PCBs." This is presumed to represent the sum of PCB Aroclors or congeners. TIG Environmental will report Aroclor- or congener-specific data where that information is available.

releases (FOIL063044 at FOIL063045). National Grid began a project to replace the leaking transformers in 2014; however, there is no indication in reviewed documents that this project was completed. A subsurface investigation conducted in 2015, consisting of two soil borings installed to 16 ft below grounds surface (bgs) at Substation Units R25 and R45, did not include sampling at the leaking transformer banks but did indicate the presence of mineral oil (by Method of Petroleum Hydrocarbons by Gas Chromatography [GC]) in soil at the Site above 10 ppm (FOIL063064 at FOIL063081–082).

The historical PCB content of oil stored and used at the Site was not provided in documents reviewed; however, National Grid investigations at the Site determined the use of PCB-containing transformer oil with Aroclor 1260 concentrations up to 19 ppm (FOIL063044 at FOIL063045; FOIL063056 at FOIL063057). In addition, PCBs were widely used in transformer oil and the sale of PCBs for industrial use began around 1930; thus, it is reasonable to conclude that transformers manufactured in 1940 likely contain PCBs. According to EPA, 95 percent of PCB products sold in the U.S. starting in 1930 were still in use by 1976, with most found in electrical transformers and capacitors (EPA 1976, 48). National Grid likely filled or repaired transformers at the Site with PCB-containing oil at various times during National Grid's operations. Refilled or repaired transformers may have included transformers that did not initially contain PCB-containing oil, including those manufactured in 1930. Monsanto Chemical Company (supplier of approximately 99 percent of PCBs used in the U.S.) records indicate National Grid purchased approximately 18,000 pounds of Therminol[4] FR-1 heat transfer fluid (containing Aroclor 1242) in 1970; however, the Monsanto sales records do not identify the specific National Grid site address that received these products or information related to purchases in other years (Knauf Shaw National Grid Teall Substation Site Dossier 2019, 1).

Soil investigations at OU-2 were performed in 2001, 2002, 2003, 2004, 2006, and 2008 (NYSDEC and EPA 2015, 19; RACER 2013, 36–37). PCBs were detected in the drainage ditch located along the northern edge of the Site, along Factory Avenue, at concentrations up to 370 ppm (NYSDEC and EPA 2015, 18). PCBs were detected in wetland soil outside of the drainage ditch at concentrations up to 14,000 ppm (NYSDEC and EPA 2015, 19).

## 2.1 Discharge Permits, Waste Handling, and/or Spills at the Site

### 2.1.1 Discharge Permits

No discharge permits were identified in documents reviewed.

### 2.1.2 Waste Handling Related to PCBs

No information related to waste handling was identified in documents reviewed.

### 2.1.3 Spills Related to PCBs

Several spills have occurred at the Site including the leaking of nine of the 12 transformers present at the Site. Although the first spill report available for the Site is dated 1995, National Grid has been operating at the Site since the 1920s, before reporting to regulatory authorities would have been expected. Given the

[4] Historically, Therminol was a registered trade name for Monsanto's PCB-containing heat transfer fluids. The Therminol trade name currently in use no longer contains PCBs (Erickson and Kaley 2011, 5).

nature of some releases at the Site (leaks), and frequency, it is likely that releases occurred throughout the entire period of National Grid's operations at the Site.

**1995** – A malfunction of pumping equipment at the Site resulted in the release of transformer oil and oil described as non-PCB oil to soil. The spill was approximately 100 gallons and the oil was not recovered (FOIL063044 at FOIL063049).

**2006** – A transformer was reported leaking oil at the Site (FOIL063044 at FOIL063044). It is unclear whether National Grid repaired or replaced this transformer. The quantity released was reported to be three gallons. According to the spill report form, cleanup was anticipated, but the report does not indicate whether cleanup was completed.

**2014** – Nine transformers were reported leaking oil at the Site, with oil reported later to contain up to 19 ppm of PCBs (FOIL063044 at FOIL063045; FOIL063056 at FOIL063057). Based on documents available at this time, these transformers have not been repaired or replaced. At the time they were reported leaking, the release volume was reported as 100 gallons.

**2015** – Equipment failure resulted in the release of approximately 20 gallons of hydraulic oil to the ground (FOIL063044 at FOIL063047). Contaminated soil in this area was removed.

**2018** – Equipment failure resulted in the release of approximately 10 gallons of transformer oil to the ground (FOIL063044 at FOIL063048). Contaminated gravel in this area was removed.

## 2.2 PCB Discharges to Ley Creek or Tributaries

This section discusses the documented or potential discharge pathways of PCBs from the Site, with emphasis on discharges to Ley Creek or its tributaries.

### 2.2.1 Direct Discharge

No direct discharges were identified in documents reviewed.

### 2.2.2 Sanitary Sewer

No connections to sanitary sewers were identified in documents reviewed.

### 2.2.3 Storm Sewer

No storm sewers were identified in documents reviewed.

### 2.2.4 Runoff

This section discusses the documented or potential PCB-containing discharges from the Site to Ley Creek or its tributaries via stormwater runoff.

- The Site is located within the Ley Creek watershed. The 10-acre National Grid Wetland is included in OU-2 (NYSDEC and EPA 2015, 10). Drainage from the wetland is discharged to a drainage ditch on the northern portion of the National Grid property, along Factory Avenue. The ditch channels discharge through culverts under Factory Avenue to Ley Creek. Review of aerial photographs indicates a small pond or wetland area may also be located south of the gravel electrical substation (Google Earth 2019).

- Surface drainage from the substation runs south, east, and north (RACER 2013, 20).

#### 2.2.5 Groundwater

No information related to groundwater flow or sampling was identified in documents reviewed.

## 3. Data Gaps

TIG Environmental has identified the following data gaps that, if filled, would increase the understanding of how PCBs were used onsite and/or released from the National Grid South Site.

- Although the wetland area north of the substation has been adequately sampled during Remedial Investigation (RI) activities, there is limited information related to environmental conditions at the Site (specifically the substation area and surrounding areas in close proximity). Reports of leaking transformers and unknown historical PCB concentrations indicate PCBs may be present in Site media.
    - Recommendation: Collect soil samples from the area adjacent to transformer banks, adjacent to the north and south perimeters of the gravel area, and the potential wetland area south of the gravel area.

## 4. Proposed Sampling to Assess Contributions to the Study Area

Because of the data gaps identified in Section 3, TIG Environmental proposes additional sampling at the Site, as described below. The sampling locations should be analyzed for PCB Aroclors (EPA Method 8082A), PCB congeners (EPA Method 1668C), total organic carbon (Lloyd Kahn method), grain size (ASTM D422), and total solids (ASTM D2216-98). In addition to those parameters, TIG Environmental may also propose sampling for particular contaminant classes (that is, metals, PAHs, volatile organic compounds [VOCs], and semivolatile organic compounds [SVOCs]), depending on the nature of operations surrounding a particular sampling location.

### 4.1 Soil

Soil sampling is recommended to identify the presence of historical PCB releases adjacent to transformers. In addition, soil sampling is recommended on the north and south sides of the gravel electrical substation to identify any historical releases via runoff. TIG Environmental proposes one sampling location adjacent to each transformer bank, the oil house, and on the north and south sides of the gravel area. TIG Environmental proposes that each of the sampling locations be analyzed for PCB Aroclors, PCB congeners, total organic carbon, grain size, and total solids.

### 4.2 Sediment

Due to the proximity of the Site to the adjacent former IFG Facility, and extensive sampling previously conducted in this area, no sediment sampling is recommended at this time. TIG Environmental recommends that the results of soil sampling be compared with existing sediment and soil data sets to identify PCB concentrations that may be attributable to National Grid's operations.

## 5. References

This ESM was prepared using the evidentiary materials listed below and provided with this document.

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